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SOME PHYSIOLOGICAL VARIATIONS OF PLANTS, AND THEIR GENERAL SIGNIFICANCE¹

IN a survey of the domain of the biological sciences in recent years, one of the most significant facts is found in the extent to which physiology has invaded those fields of this domain which, in the earlier stages of development, seemed entirely apart from and independent of physiological relations. When species of plants were supposed to have been created at the beginning just as we find them to-day, and to transmit their original characters unchanged to their remotest possible descendants, there was no physiological question as to the variations within species, and none as to the relation of species to each other nor as to the origin of new species. In that view there could be no origin of new species. They were all created at the beginning, and then the Creator rested.

When botany first began to be a science it was merely an attempt to classify plants, that is, to discover the characters of species as they were originally created, to group together those that were most alike and to separate those that were unlike. The characters used in the first attempts at classification were more or less superficial, and systematic botany was merely a study in formal external morphology.

But a change has come; and this change began with the general acceptance, among biologists, of the view that species are not

¹ Presidential address delivered before the Michigan Academy of Science at Ann Arbor, Mich., March 28, 1907.